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(54) Abstract Title
Grass collection receptacle for a lawnmower

(57) A lawnmower grass box 2 is provided with a transparent panel 3 positioned in a wall thereof, and in general alignment with a predetermined level of filling of the grassbox. The panel or window 3 enables the user to view the level of grass within the box 2.

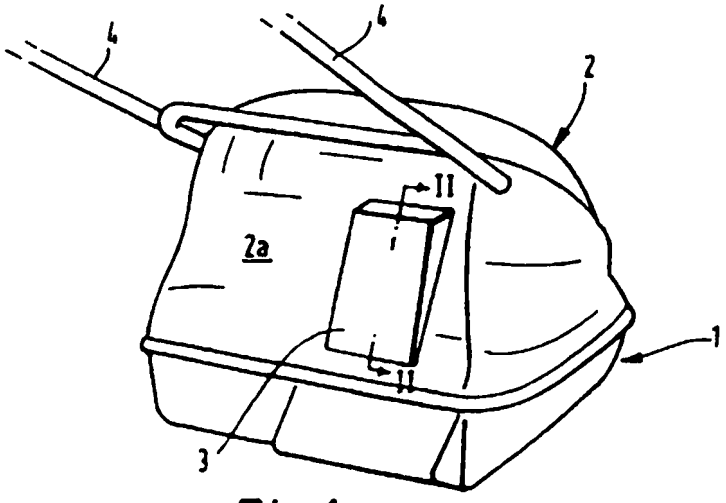

Fig.1.

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

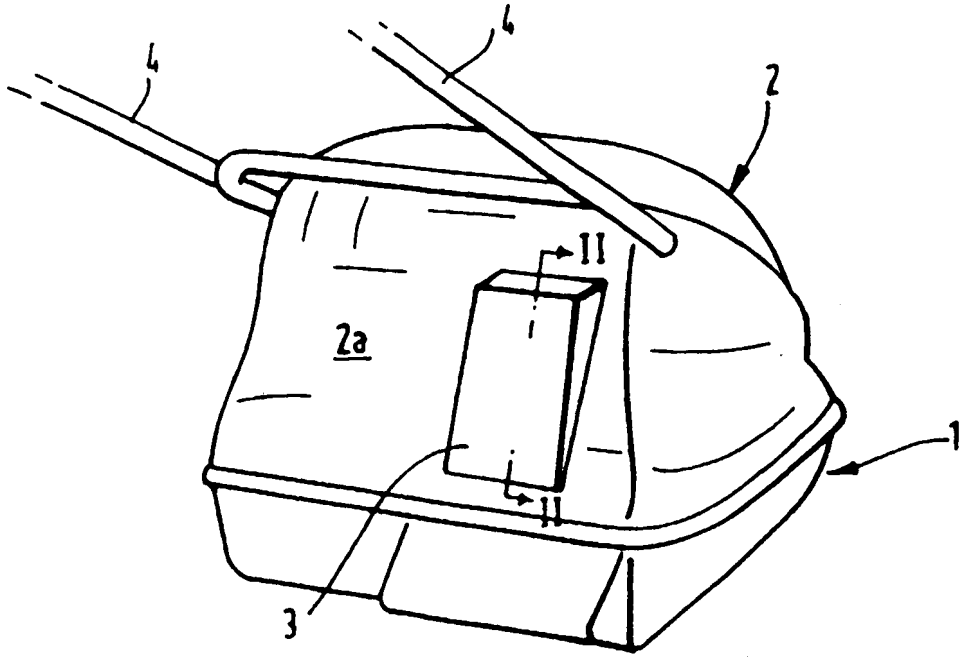

Fig.1.

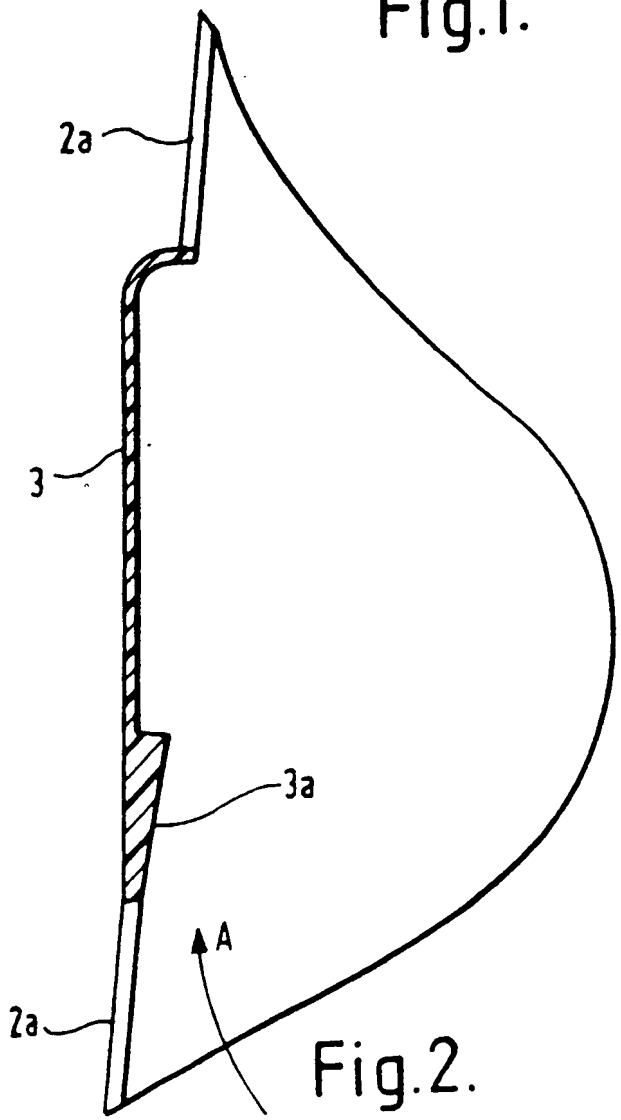

Fig.2.

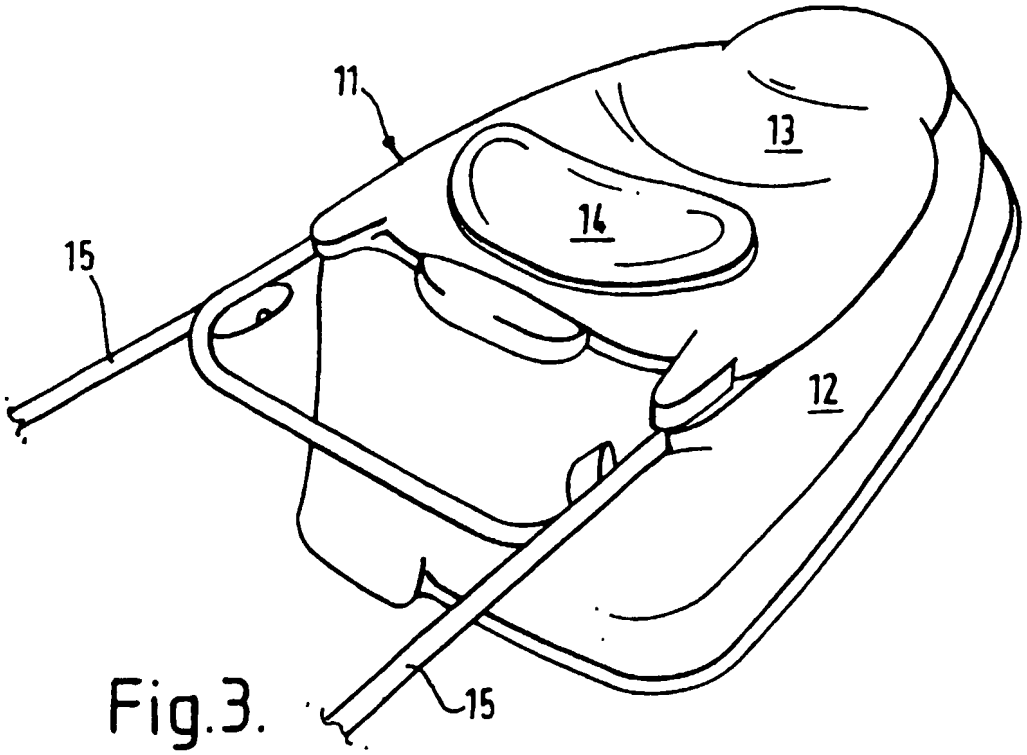

Fig.3.

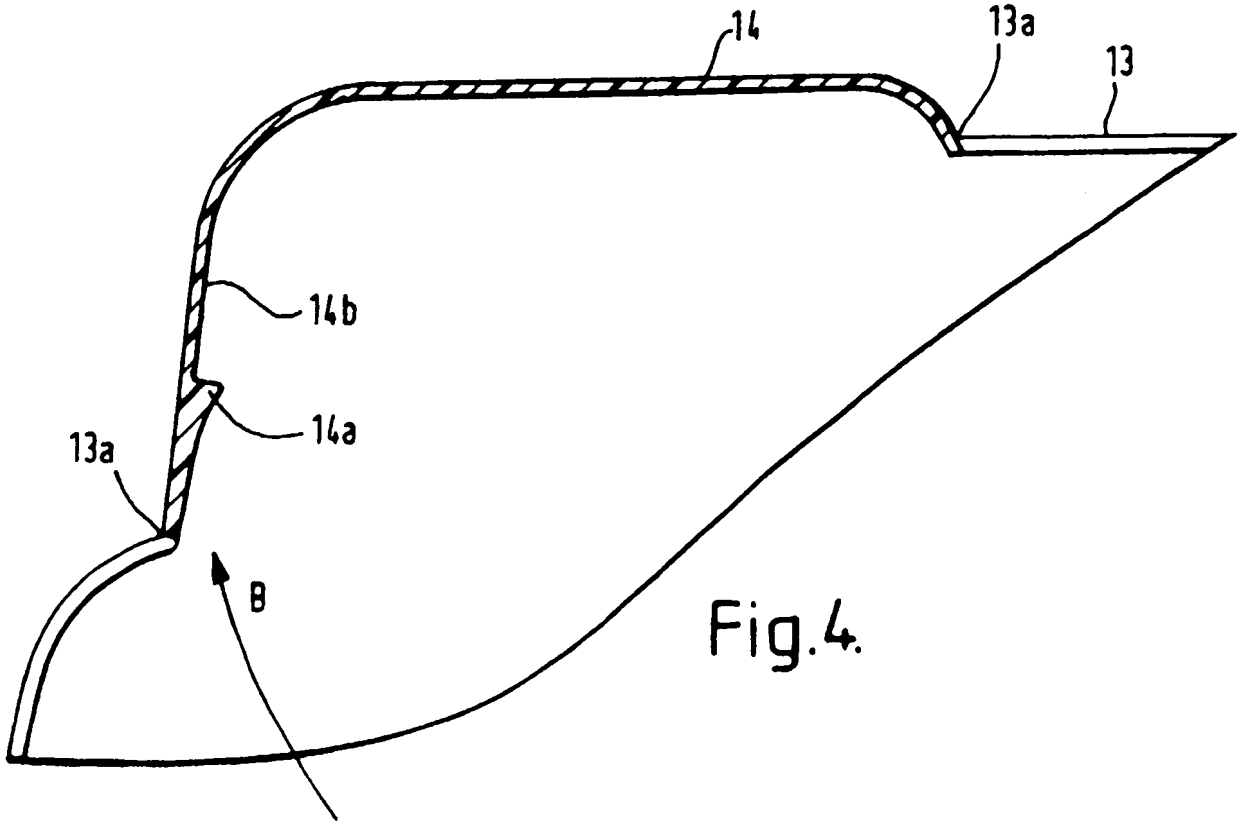

Fig.4.

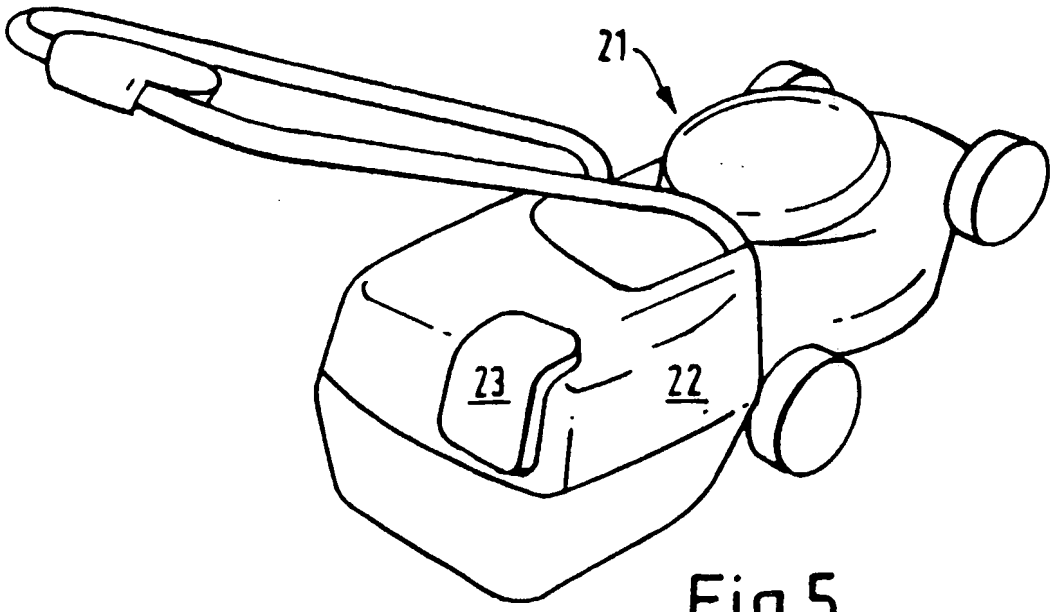

Fig.5.

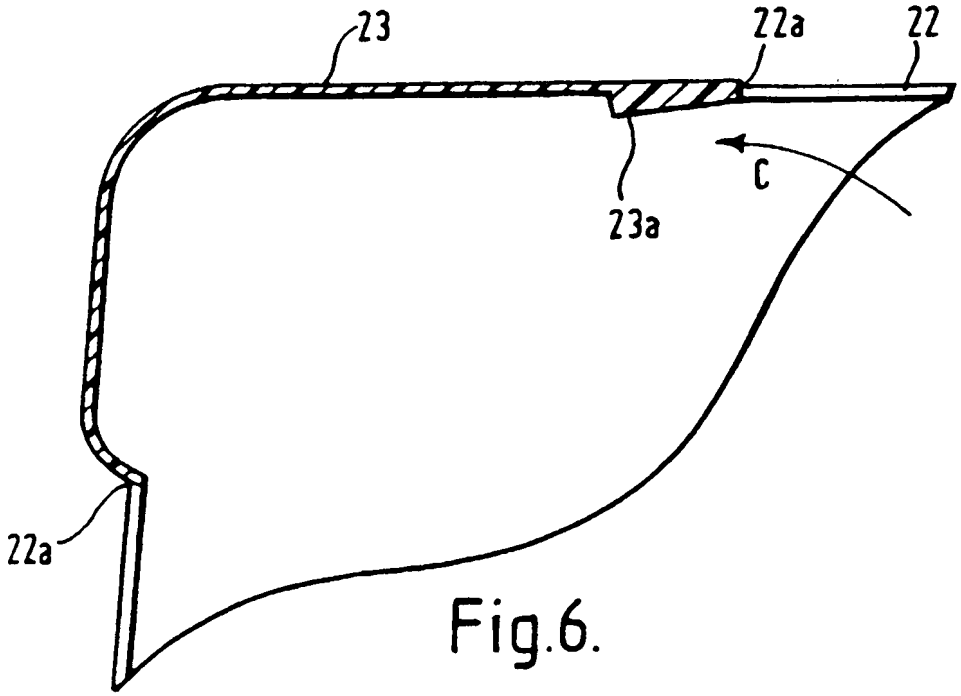

Fig.6.

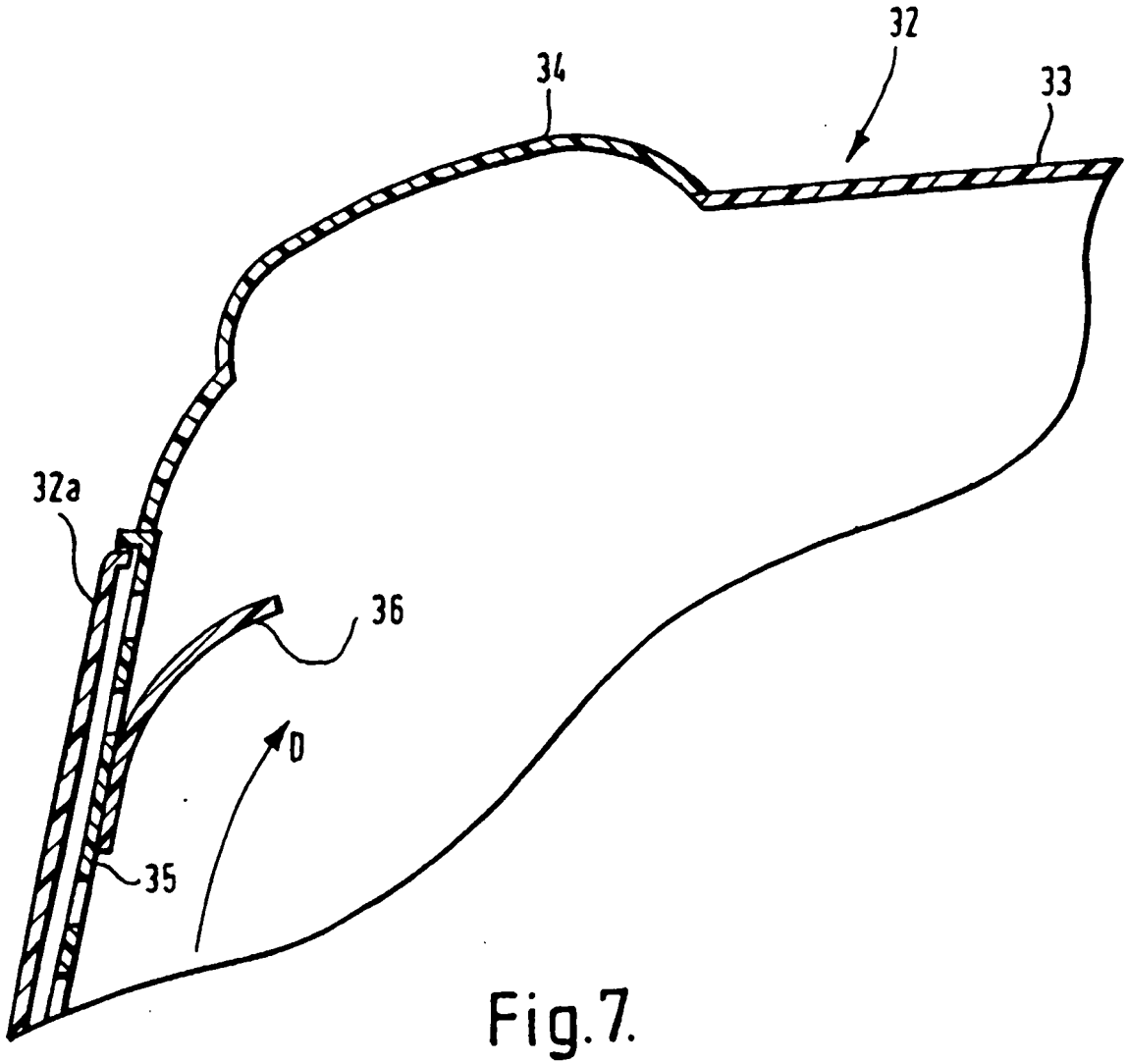

Fig.7.

Collection Receptacle

This invention relates to a receptacle for collecting debris such as grass cuttings, and in particular to a grass box for a grass cutting machine such as a lawnmower.

There are two main types of lawnmower currently in production, namely a machine which is supported, relative to ground datum, by wheels, rollers or a combination of both (commonly called a wheeled rotary machine), and a machine which is supported by a cushion of air (commonly called a hover mower). In either case, the machine includes either a cutting blade rotatable about an axis which is substantially vertical relative to ground datum, or a cutting system having a cylindrical cutting unit which includes a plurality of blades, and which, in use, is rotatable about an axis which is substantially parallel to ground datum. In either case, the cutting system may be powered by an electric motor or an internal combustion engine. Finally, a lawnmower can be either of the collecting or non-collecting type, that is say that it may be provided with a grass collection receptacle (grass box) for collecting cut grass, or cut grass may be allowed to fall to the ground to act as a mulch.

For machines of the collecting type, it is important, for a number of reasons, for the user to know when the grass box is full and is unable to take any more clippings. Firstly, it is important because the receptacle has to be emptied when full. Secondly, when the grass box is not emptied, grass will be left on the ground behind the lawnmower. Thirdly, depending on the design of the lawnmower, grass that cannot be sent to the grass box because the grass box is full has a tendency to clog around the cutting system, which results in a poor quality of cut, giving an untidy appearance to a cut lawn.

There already exists a number of devices for indicating when a grass box is full. However, all the known devices are susceptible to becoming ineffective in use. This is because known devices are all reliant upon the relative motion of components which are actuated under the influence of a change of air pressure or air flow. Such devices have a tendency to become ineffective due to contamination of the air flow by the grass clippings, particularly when these are wet. Thus, wet debris tends to stick to the surface of such a moving component, altering its dynamic properties, or blocking

any openings that may be present in the design. This contamination can result in devices of this type becoming inoperative.

The aim of the invention is to provide a grass collection receptacle which is more effective than known devices.

The present invention provides a receptacle for collecting debris, the receptacle being provided with a transparent panel positioned in a wall of the receptacle and in general alignment with a predetermined level of filling of the receptacle with debris.

Advantageously, the predetermined level is a level indicating that the receptacle is full.

Preferably, the transparent panel is fixed within an aperture formed in said wall. Alternatively, the transparent panel is detachably mounted in an aperture formed in said wall.

In a preferred embodiment, the transparent panel is made of a thermoplastics material such as ABS, SAN, polycarbonate or acrylic.

Advantageously, the transparent panel is positioned in general alignment with said predetermined level from the viewpoint of the user of the lawnmower.

Conveniently, the receptacle is a grass box for a lawnmower, the transparent panel being provided in a rear wall of the grass box so as to be readily visible to a user of a lawnmower associated with the grass box. Alternatively, the transparent panel is provided in a lid of the grass box so as to be readily visible to a user of a lawnmower associated with the grass box. In the latter case, the lid may form part of a housing of the lawnmower, and the grass box may be open-topped and positioned within the housing. Preferably, the transparent panel extends substantially the entire width of the lid.

In a preferred embodiment, the receptacle further comprises a deflector for deflecting an air stream within the receptacle away from the transparent panel.

Preferably, an edge portion of the transparent panel is formed with an internally-extending, wedge-shaped projection which tapers towards the adjacent edge of the panel, the projection constituting the deflector. Where the panel is in the rear wall of the grass box, the wedge-shaped projection is formed at the lower edge portion of the transparent panel, and tapers towards the lowest portion of the panel; and, where the panel is in the lid, the panel has a generally L-shaped cross-section, one portion of

which lies substantially parallel to the plane of the lid, the other portion of which lies generally at right-angles to the lid, and the wedge-shaped projection is positioned at the lower edge portion of said other panel portion, and tapers towards the lowest portion of the panel.

In another preferred embodiment, the receptacle further comprises a lift-out grass container positioned within the grass box, the deflector being provided on the container in such a position as to deflect grass clippings carried by said air stream away from the transparent panel.

Several forms of lawnmower grass box, each of which is constructed in accordance with the invention, will now be described, by way of example, with reference to the drawings, in which:-

Figure 1 is a perspective view of a first-form of the grass box and an associated hover mower;

Figure 2 is a cross-section, on an enlarged scale, taken on the line II-II of Figure 1;

Figure 3 is a perspective of a second form of grass box and an associated hover mower;

Figure 4 is a cross-section, on an enlarged scale, taken on the line IV-IV of Figure 3;

Figure 5 is a perspective view of a third form of grass box and an associated wheeled rotary lawnmower;

Figure 6 is a cross-section, on an enlarged scale, taken on the line VI-VI of Figure 5; and

Figure 7 is a cross-section showing the top, rear portion of a fourth form of grass box.

Referring to the drawings, Figure 1 shows a hover mower, indicated generally by the reference numeral 1, provided with a grass box 2. The grass box 2 is provided in its rear wall 2a, with a transparent panel 3. The transparent panel 3 is positioned towards the top of the grass box 2 to enable to user of the mower to see inside the grass box while it is filling, and so that the user can easily see when the grass box approaches the full state. The transparent panel 3 is positioned in the rear wall 2a of the grass box 2

so that the user can see the panel, and into the interior of the grass box, whilst operating the lawn mower 1 in the normal position using handles 4.

Figure 2 shows a cross-section through the panel 3 which is positioned in an aperture 2b formed in the rear wall 2a of the grass box 2. The panel 3 is formed with a deflection ramp 3a along its lower edge. The deflection ramp 3a is positioned such that the stream of air, indicated by the arrow A, which carries grass clippings from the cutting system (not shown) of the hover mower 1 is deflected away from the panel 3, thereby preventing the panel becoming contaminated with grass clippings, particularly when these are wet.

Figure 3 shows a hover mower 11 having a body 12 which houses a grass box (not shown). A lid 13 is pivotally attached to the body 12 so as to overlie the grass box. A transparent panel 14 is provided in the lid 13, the transparent panel being positioned towards the rear of the lid 13 to enable the user of the mower 11 to see inside the grass box while it is filling, and so that the user can easily see when the grass box approaches the full state. The transparent panel 14 is positioned so that the user can see the panel, and into the interior of the grass box, whilst operating the mower 11 in the normal position using handles 15. Moreover, the panel 14 extends substantially the entire width of the lid 13, thereby affording the user of the mower 11 a good and clear view of the interior of the grass box.

Figure 4 shows a cross-section through the panel 14 which is positioned in an aperture 13a formed in the lid 13. The panel 14 is formed with a deflection ramp 14a along its rear, upwardly-extending edge 14b. The deflection ramp 14a is positioned such that the stream of air, indicated by the arrow B, which carries grass clippings from the cutting system (not shown) of the mower 11 is deflected away from the panel 14, thereby preventing the panel becoming contaminated with grass clippings, particularly when these are wet.

Figure 5 shows a wheeled rotary mower 21 provided with a grass box 22 at its rear. An L-shaped transparent panel 23 is positioned at the rear of the grass box 22, the panel being positioned within an aperture 22a formed in the top and rear walls thereof. As with the earlier embodiments, the panel 23 is positioned to enable the user of the mower 21 to see inside the grass box while it is filling, whilst operating the mower in the normal position using handles 24.

Figure 6 shows a cross-section through the panel 23, the panel being formed with a deflection ramp 23a positioned at its leading edge, that is to say in such a position that the stream of air, indicated by the arrow C, which carries grass clippings from the cutting system (not shown) of the mower 21 is deflected away from the panel, thereby preventing the panel becoming contaminated with grass clippings, particularly when these are wet.

Figure 7 shows the top rear portion of a modified form of grass box 32. The grass box 32 has an outer casing 32a provided with a lid 33, the lid being pivotally attached to the casing at the front end (not shown) thereof. A transparent panel 34 is formed in the lid towards the rear end thereof. A perforated lift-out basket 35 is positioned, in use, within the outer casing 32a of the grass box 32. A curved deflection ramp 36 is provided within the basket 35 at the upper end portion of its rear wall, the deflection ramp being positioned such that the stream of air, indicated by the arrow D, which carries grass clippings from the cutting system of the associated mower (not shown) is deflected away from the panel 34, thereby preventing the panel becoming contaminated with grass clippings, particularly when these are wet.

Each of the panels 3, 14, 23 and 34 is manufactured from a transparent grade of thermoplastics material, such as ABS, SAN, polycarbonate or acrylic; and each panel could be produced by injection moulding or by vacuum forming.

It will be apparent that modifications could be made to each of the grass boxes described above. For example, its transparent panel 3, 14, 23 and 34 may be removably mounted in its aperture. This would permit the user to remove the transparent panel 3, 14, 23 and 34 for cleaning, after extended use, either using water or by brushing. Moreover, in the first three embodiments the deflector 3a, 14a, or 23a could be positioned on, or form part of, the associated grass box rather than as part of the associated transparent panel 3, 14 or 23. In this case, the relevant deflector would be positioned to deflect grass clippings carried by the stream of air generated by the associated mower away from the associated transparent panel 3, 14 or 23.

Claims

1. A receptacle for collecting debris, the receptacle being provided with a transparent panel positioned in a wall of the receptacle and in general alignment with a predetermined level of filling of the receptacle with debris.

2. A collection receptacle as claimed in claim 1, wherein the predetermined level is a level indicating that the receptacle is full.

3. A collection receptacle as claimed in claim 1 or claim 2, wherein the transparent panel is fixed within an aperture formed in said wall.

4. A collection receptacle as claimed in claim 1 or claim 2, wherein the transparent panel is detachably mounted in an aperture formed in said wall.

5. A collection receptacle as claimed in any one of claims 1 to 4, wherein the transparent panel is made of a thermoplastics material such as ABS, SAN, polycarbonate or acrylic.

6. A collection receptacle as claimed in any one of claims 1 to 5, wherein the transparent panel is positioned in general alignment with said predetermined level from the viewpoint of the user of the lawnmower.

7. A collection receptacle as claimed in any one of claims 1 to 6, wherein the receptacle is a grass box for a lawnmower, the transparent panel being provided in a rear wall of the grass box so as to be readily visible to a user of a lawnmower associated with the grass box.

8. A collection receptacle as claimed in any one of claims 1 to 6, wherein the transparent panel is provided in a lid of the grass box so as to be readily visible to a user of a lawnmower associated with the grass box.

9. A collection receptacle as claimed in claim 8, wherein the lid forms part of a housing of the lawnmower, and the grass box is open-topped and positioned within the housing.

10. A collection receptacle as claimed in claim 8 or claim 9, wherein the transparent panel extends substantially the entire width of the lid.

11. A collection receptacle as claimed in any one of claims 1 to 10, further comprising a deflector for deflecting an air stream within the receptacle away from the transparent panel.

12. A collection receptacle as claimed in claim 11, wherein an edge portion of the transparent panel is formed with an internally-extending, wedge-shaped projection which tapers towards the adjacent edge of the panel, the projection constituting the deflector.

13. A collection receptacle as claimed in claim 12 when appendant to claim 7, wherein the wedge-shaped projection is formed at the lower edge portion of the transparent panel, and tapers towards the lowest portion of the panel.

14. A collection receptacle as claimed in claim 12 when appendant to claim 8 or claim 9, wherein the panel has a generally L-shaped cross-section, one portion of which lies substantially parallel to the plane of the lid, the other portion of which lies generally at right-angles to the lid, and wherein the wedge-shaped projection is positioned at the lower edge portion of said other panel portion, and tapers towards the lowest portion of the panel.

15. A collection receptacle as claimed in claim 11 when appendant to any one of claims 6 to 10, further comprising a lift-out grass container positioned within the grass box, the deflector being provided on the container in such a position as to deflect grass clippings by said air stream away from the transparent panel.